

What is claimed is:

1. A self-contained reusable electronic musculoskeletal stimulation apparatus comprising:

a control circuit connected directly to two or more electrodes wherein said control circuit and said electrodes are contained within the same housing;

wherein said control circuit is surrounded by a layer of electrical insulation;

wherein said housing is formed by one or more layers of water resistant materials to form a water resistant apparatus;

wherein said apparatus forms a flexible device that fits close to a body; and

wherein said apparatus is attachable to said body with adhesive comprising replaceable electrogel pads.

2. The self-contained reusable electronic musculoskeletal stimulation apparatus of claim 1, wherein said apparatus has an adjustable voltage intensity which ranges from approximately 90 volts to 180 volts.

3. The self-contained reusable electronic musculoskeletal stimulation apparatus of claim 1, wherein said apparatus has an adjustable voltage intensity that includes a low, a medium and a high intensity level.

4. The self-contained reusable electronic musculoskeletal stimulation apparatus of claim 3, wherein said low intensity level outputs approximately 90 to 99 volts.

5. The self-contained reusable electronic musculoskeletal stimulation apparatus of claim 3, wherein said body receives approximately 15 to 19.5 volts when said apparatus is attached on said body and low intensity level is activated.

6. The self-contained reusable electronic musculoskeletal stimulation apparatus of claim 3, wherein said medium intensity level outputs approximately 100 to 150 volts.

7. The self-contained reusable electronic musculoskeletal stimulation apparatus of claim 3, wherein said body receives

approximately 19.6 to 22.9 volts when said apparatus is attached on said body and medium intensity level is activated.

8. The self-contained reusable electronic musculoskeletal stimulation apparatus of claim 3, wherein said high intensity level outputs approximately 155 to 180 volts.

9. The self-contained reusable electronic musculoskeletal stimulation apparatus of claim 3, wherein said body receives approximately 23 to 27 volts when said apparatus is attached on said body and high intensity level is activated.

10. The self-contained reusable electronic musculoskeletal stimulation apparatus of claim 1, wherein said housing is composed of polyvinylchloride.

11. The self-contained reusable electronic musculoskeletal stimulation apparatus of claim 1, wherein said housing is composed of thermoplastic material.

12. The self-contained reusable electronic musculoskeletal stimulation apparatus of claim 1, wherein said apparatus is powered by a 3 volt lithium battery.

13. The self-contained reusable electronic musculoskeletal stimulation apparatus of claim 1, wherein said apparatus outputs a square waveform at a constant current.

14. The self-contained reusable electronic musculoskeletal stimulation apparatus of claim 1, wherein said apparatus uses a frequency of approximately 0.1 to 4000 hertz.

15. The self-contained reusable electronic musculoskeletal stimulation apparatus of claim 1, wherein said apparatus uses a frequency of approximately 7 hertz.

16. The self-contained reusable electronic musculoskeletal stimulation apparatus of claim 1, wherein said apparatus has a pulse-width of approximately 0.01 microseconds to 50 milliseconds.

17. The self-contained reusable electronic musculoskeletal stimulation apparatus of claim 1, wherein said apparatus has a pulse-width of approximately 45 milliseconds.

18. The self-contained reusable electronic musculoskeletal stimulation apparatus of claim 1, wherein said apparatus outputs approximately thirty pulses over a four second duration.

19. The self-contained reusable electronic musculoskeletal stimulation apparatus of claim 1, wherein said apparatus includes at least two buttons, whereby the first button powers said apparatus on and off and selects an intensity of said stimulation and the second button activates said stimulation.

20. The self-contained reusable electronic musculoskeletal stimulation apparatus of claim 1, wherein said apparatus includes at least one indicator that displays the status of said apparatus.

21. The self-contained reusable electronic musculoskeletal stimulation apparatus of claim 20, wherein said apparatus includes three indicators whereby each indicator corresponds to an intensity of

stimulation and displays which intensity has been selected, when said apparatus is delivering treatment, and what intensity treatment is being delivered to a patient.

22. The self-contained reusable electronic musculoskeletal stimulation apparatus of claim 1, wherein said electrogel pads are composed of hydrogel.

23. The self-contained reusable electronic musculoskeletal stimulation apparatus of claim 22, wherein said electrogel pads adhere to the body and the apparatus by the adhesive properties of the hydrogel.

24. The self-contained reusable electronic musculoskeletal stimulation apparatus of claim 1, wherein said electrogel pads are secured to the apparatus by use of a fastening arrangement where a male component is located on either the apparatus or a backside of the electrogel pad and couples with a female component which is located on the corresponding apparatus or backside of the electrogel pad.

25. A method of applying pain relieving electronic stimulation to a body using a self-contained reusable electronic musculoskeletal stimulation apparatus for the relief of minor, chronic and acute musculoskeletal aches and pains and mild muscle tension comprising the steps of:

affixing said apparatus to said body with replaceable electrogel pads contained on the backside of said apparatus wherein said apparatus is affixed to said body at predetermined stimulation points;

selecting an intensity of said electronic stimulation from low, medium or high intensity wherein said selection is identified by at least one indicator;

activating said electronic stimulation wherein said electronic stimulation is controlled by a microprocessor that allows for multiple frequencies or pulse variations;

removing said apparatus from said first stimulation point when said electronic stimulation is complete, affixing said apparatus to a second predetermined stimulation point on said body, selecting said intensity, and activating said electronic stimulation; and

repeating said process until all predetermined stimulation points have been stimulated and said pain is relieved.

26. The method of claim 25, further comprising the step of moving said portion of the body where the pain is occurring, determining if pain is still occurring, and if said pain is still occurring, affixing said apparatus directly on the location of said pain, and activating said electronic stimulation.

27. The method of claim 25, wherein said stimulation apparatus includes a control circuit connected directly to two or more electrodes wherein said control circuit and said electrodes are contained within the same housing.

28. The method of claim 25, wherein said stimulation apparatus has an adjustable voltage intensity which ranges from approximately 90 volts to 180 volts.

29. The method of claim 25, wherein said stimulation apparatus includes two buttons, whereby the first button powers said apparatus and selects an intensity of said stimulation and the second button activates said stimulation.



30. The method of claim 25, wherein said at least one indicator that displays the status of said stimulation apparatus.

31. The method of claim 30, wherein said stimulation apparatus includes three indicators whereby each indicator corresponds to said intensity of stimulation and displays which intensity has been selected, when said apparatus is delivering treatment, and what intensity treatment is being delivered to a patient.

32. The method of claim 30, wherein said indicator is a light emitting diode.

33. A method of applying pain relieving electronic stimulation to a body using a self-contained reusable electronic musculoskeletal stimulation apparatus with a preprogrammed treatment stimulation protocol comprising the steps of:

applying a constant current to the electrodes wherein a voltage is adjustable between three intensities of low, medium and high at a frequency of approximately 7 hertz and a pulse-width of approximately 45 milliseconds; and

applying said current with a burst of around 30 pulses within approximately a four second duration.

34. The method of claim 33, wherein said low intensity exerts approximately 90 to 99 volts.

35. The method of claim 33, wherein said body receives approximately 15 to 19.5 volts when said apparatus is attached on said body and low intensity is activated.

36. The method of claim 33, wherein said low intensity has a duty cycle in the range of 9-14%.

37. The method of claim 33, wherein said medium intensity exerts approximately 100 to 150 volts.

38. The method of claim 33, wherein said body receives approximately 19.6 to 22.9 volts when said apparatus is attached on said body and medium intensity is activated.

39. The method of claim 33, wherein said medium intensity has a duty cycle in the range of 26-31%.

40. The method of claim 33, wherein said high intensity exerts approximately 155 to 180 volts.

41. The method of claim 33, wherein said body receives approximately 23 to 27 volts when said apparatus is attached on said body and high intensity is activated.

42. The method of claim 33, wherein said high intensity has a duty cycle in the range of 47-53%.

43. A self-contained reusable electronic musculoskeletal stimulation apparatus that transmits information by a wireless signal.

44. The self-contained reusable electronic musculoskeletal stimulation apparatus of claim 43, wherein said wireless signal is transmitted by wireless modulation technique.

45. The self-contained reusable electronic musculoskeletal stimulation apparatus of claim 43, wherein said information is selected from the group consisting of: the number of times the apparatus has been used, the intensity levels used by the patient, patient information, billing information, warranty data and combinations thereof.

46. The self-contained reusable electronic musculoskeletal stimulation apparatus of claim 43, wherein said information is transmitted to a wireless data transfer device.

47. The self-contained reusable electronic musculoskeletal stimulation apparatus of claim 46, wherein a software program controls the wireless data transfer device and allows access to the information being transmitted from the apparatus and facilitates uploading the information into a computer.